REMARKS

The Office Action dated August 12, 2005, has been received and carefully noted. The above amendments to the specification and claims, and the following remarks, are submitted as a full and complete response thereto.

Claim 1 has been amended to correct a typographical error. Accordingly, the amendment to claim 1 is not a narrowing amendment, and is not made to affect any change in claim scope from what was originally intended. Figure 2 and the corresponding paragraphs in the specification have been amended to correct typographical errors. Accordingly, these amendments do not add any new subject matter. Claims 1-32 are currently pending in the case, of which claims 1, 10, 19, 24, 28, and 31-32 are independent. In view of the above amendments and the following remarks, Applicant respectfully submits claims 1-32 for consideration.

Preliminary Matter

As a preliminary matter, Applicant notes that claim 15, though listed as "rejected" in the summary of the office action, is not actually rejected over any prior art of record. Applicant notes that claim 15 recites matter that is neither suggested nor disclosed in the cited art. Accordingly, Applicant respectfully requests that claim 15 be considered and allowed.

Objections to Figures

The Office Action objects to Figure 2, because reference numeral 226 was used for both the bandgap reference circuit and the supply current, and because the symbol for

IN THE DRAWINGS:

Please replace Figure 2 as filed with Replacement Figure 2, attached.

Attachments: Replacement Sheet: Figure 2

Annotated Figure showing changes to Figure 2

current source 224 is not recognizable. Applicant has renumbered the bandgap reference circuit as 236 in Figure 2, and in paragraphs 0028, 0031, 0034, and 0045 of the specification. A courtesy copy of the revised figure circling the changed parts has been included.

Rejections under 35 U.S.C. 102(b)

Claims 1-10, 12-14, and 16-32 were rejected under 35 U.S.C. 102(b) as anticipated by U.S. 6,166,670 of O'Shaughnessy ("O'Shaughnessy"). Applicant respectfully traverses this rejection.

Independent claim 1, upon which claims 2-9 depend, is directed to a noise reduction circuit. The noise reduction circuit may include a filter coupled to a gate of a current source for an oscillating circuit to filter a bias noise component into the gate. The noise reduction circuit may also include a degeneration circuit coupled to a supply for the current source, wherein the degeneration circuit reduces a gain within the current source.

Independent claim 10, upon which claims 12-14 and 16-18 depend, is directed to a system for reducing noise in an oscillating circuit. A filtering device having a first resistance and a capacitance to filter a bias current and coupled to a gate of a current source. The system may also include a degeneration device having a second resistance to reduce a noise component in a supply current at the current source.

Independent claim 19, upon which claims 20-23 depend, is directed to a method for reducing noise. The method may include filtering a bias noise component from a bias current flowing into a gate of a current source for an oscillating circuit. The method may

also include reducing a supply noise component from a supply current flowing into a supply of the current source.

Independent claim 24, upon which claims 25-27 depend, is directed to a method for reducing noise components. The method may include reducing a bias noise component by passing a bias current through a noise reduction circuit coupled to a gate of a current source to an oscillating circuit. The method may also include reducing a supply noise component by passing a supply current through the noise reduction circuit coupled to a supply of the current source.

Independent claim 28, upon which claims 29-30 depend, is directed to a circuit that may include an oscillating circuit to generate an output signal. The circuit may also include a current source to control the oscillating circuit. The current source may receive a signal derived from a reference signal to generate the output signal. The circuit may also include a noise reduction circuit coupled to a gate and a supply of the current source to reduce a noise component within the signal.

Independent claim 31 is directed to a circuit for reducing noise. The circuit may include filtering means for filtering a bias noise component from a bias current flowing into a gate of a current source for an oscillating circuit. The circuit may also include reducing means for reducing a supply noise component from a supply current flowing into a supply of the current source.

Independent claim 32 is directed to a circuit for reducing noise components. The circuit may include first reducing means for reducing a bias noise component by passing

a bias current through a noise reduction circuit coupled to a gate of a current source to an oscillating circuit. The circuit may also include second reducing means for reducing a supply noise component by passing a supply current though the noise reduction circuit coupled to a supply of the current source.

It is respectfully submitted that the cited art of O'Shaugnessy fails to disclose or suggest all the elements of any of the presently pending claims.

O'Shaugnessy is directed to a self-calibrating current mirror and digital to analog converter. O'Shaugnessy, in Figure 3, describes a current mirror that may serve as a circuit that reduces the error due to device mismatch under certain conditions. The source of input current 318 is connected to the gates of three transistors (310A/312, 320A/322A, and 320B/322B). The transistors are arranged in order to provide a current mirror that reduces error due to device mismatch. O'Shaugnessy labels Figure 3, which contains the above-described circuit, as prior art.

Independent claim 1, upon which claims 2-9 depend, recites "a noise reduction circuit." O'Shaugnessy does not teach or suggest that the described circuit is a noise reduction circuit. Indeed, O'Shaugnessy does not teach or suggest that any inputs to the circuit will contain noise that can be reduced. Much less does O'Shaugnessy teach or suggest that the noise is bias noise. Accordingly, O'Shaugnessy fails to teach or suggest at least this feature of claim 1.

The Office Action takes the position that the claimed circuit is known, and that a known circuit cannot be patented by virtue of previously unstated characteristics. The

correct test for anticipation, however, is whether each and every element of the claim is found in a single prior art reference. Verdegaal Bros. v. Union Oil Co. of Calif., 814 F.2d 628, 631 (Fed. Cir. 1987). Moreover, the appropriate test as to whether an element is taught inherently is whether the missing descriptive matter is necessarily present in the thing described in the reference, and that it would so recognized by persons of ordinary skill. Continental Can Co. USA v. Monsanto Co. 948 F.2d 1264, 1268 (Fed. Cir. 1991).

Additionally, Claim 1 recites "a filter coupled to a gate of a current source for an oscillating circuit to filter a bias noise component into the gate." O'Shaugnessy does not teach or suggest this element. O'Shaugnessy does not teach that any element of its described circuit serves as a filter, and any structurally similar feature (such as O'Shaugnessy's capacitor 380) is not taught as being appropriately selected to filter noise, as noise is not a described or taught portion of O'Shaugnessy's circuit, as explained above.

Assuming for the moment that O'Shaugnessy provided a filter (not admitted), O'Shaugnessy's filter is not taught as connected to an oscillating circuit. Indeed, O'Shaugnessy does not teach or suggest connecting the circuit to any actual output, because, as O'Shaugnessy puts it, the "circuit of FIG. 3 provides improved matching only over a **limited range** of current. If the current is too small, the circuit becomes **sensitive to device mismatches**. When current is too large, **insufficient supply voltage exists** to drive the output load." Col. 5. ll. 32-37. Thus, although O'Shaugnessy mentions that current mirrors can be used with balanced modulators, O'Shaugnessy does not suggest

combining the circuit of Figure 3 with a balanced modulator. Rather the cited portion regarding balanced modulators relates to a general description, as can be seen at Col. 1, ll. 29-35 ("In general ...."). Accordingly, O'Shaugnessy fails to teach or suggest at least these features of claim 1.

Independent claims 10, 19, 24, 28, 31, and 32 each have their own scope, as explained above. Claims 10, 19, 24, 28, 31, and 32, however, have some similar recitations to claim 1. For example, they recite "an oscillating circuit," (Claims 10, 19, 24, 28, 31, and 32) and "a filtering device [in a system for reducing noise]" (Claim 10), "filtering a bias noise component" (Claim 19), "reducing a bias noise component" (Claim 24), "a noise reduction circuit ... to reduce a noise component" (Claim 28), "filtering means for filtering a bias noise component" (Claim 31), and "first reducing means for reducing a bias noise component" (Claim 32). Thus, the same arguments as applied to independent claim 1 may be applied to each of the independent claims.

Rejections under 35 U.S.C. 103(a)

Claims 1-14 and 16-32 were rejected under 35 U.S.C. 103(a) as unpatentable over O'Shaugnessy in view of U.S. Patent No. 5,909,150 of Kostelnik et al. ("Kostelnik"). The Office Action takes the position that O'Shaugnessy teaches all the elements of the claims, except as to what provided the current at the source of the input current, and that Kostelnik disclosed that band gap bias circuits were known for this purpose. Applicant respectfully traverses this rejection.

Kostelnik is directed to a system and method for improving the regulation of a supply voltage for a controllable oscillator using feed forward control techniques. Kostelnik indicates, at Col. 9, ll. 1-3 that a band gap bias circuit can be used to provide a bias current. The bias current i_{bias} in Kostelnik is being provided to a pair of transistors, M5 and M6, as shown in Figure 8. Figure 8 depicts a voltage control circuit 4003 which provides voltage to a current controlled oscillator circuit 1013 connected at node 4005.

As discussed above, O'Shaugnessy fails to teach or suggest several elements of the claims of the present invention. Kostelnik does not remedy the above-described deficiencies of O'Shaugnessy.

O'Shaugnessy teaches away from the invention. As described above, O'Shaugnessy describes Figure 3 as prior art and describes its deficiencies. O'Shaugnessy even goes so far as to state at Col. 6, ll. 4-5 that the "current mirror structure[] disclosed in ... FIG. 3 [has] mismatch errors." O'Shaugnessy continues to deprecate the embodiment shown in FIG. 3, at Col. 6, ll. 26-27 by stating that "mismatch error of current mirror circuits produces numerous adverse effects." This is doubtless why, as explained above, although generic output loads are depicted, O'Shaugnessy does not suggest using the described circuit in combination with anything. Kostelnik is not directed to overcome the deficiencies described by O'Shaughnessy, nor is Figure 3 of O'Shaughnessy designed to overcome the deficiencies of Kostelnik. Thus, one of ordinary skill in the art would not find motivation, teaching, or suggestion to combine O'Shaugnessy with Kostelnik.

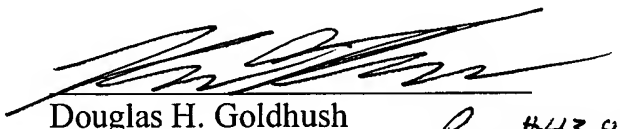
Even if O'Shaugnessy and Kostelnik could be combined (not admitted), the combination would still not recite all the features recited in the claims. For example, such a combination would not teach "a filter ... to filter a bias noise component into the gate" as recited by claim 1, or the similar (though different) recitations of the independent claims. O'Shaugnessy's failure to provide these elements is explained above. Kostelnik only describes filtering high frequency noise on the node 4005 which is the output of Kostelnik's voltage control circuit. Accordingly, the cited art of O'Shaugnessy and Kostelnik, whether taken singly or in combination does not teach or suggest all of the elements of any of the presently pending claims.

Conclusion

Accordingly, it is respectfully submitted that each of claims 1-32 recite subject matter that is neither disclosed nor suggested in the cited prior art. It is therefore respectfully requested that all of claims 1-32 be timely considered and allowed in view of the above amendments and arguments.

In the event this paper is not being timely filed, the applicant respectfully petitions for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



Douglas H. Goldhush
Registration No. 33,125 Reg #43,937

Customer No. 32294
SQUIRE, SANDERS & DEMPSEY LLP
14TH Floor
8000 Towers Crescent Drive
Tysons Corner, Virginia 22182-2700
Telephone: 703-720-7800
Fax: 703-720-7802

DHG:cct:kmp

Enclosures: Replacement Figure 2
Courtesy Copy of Replacement Sheet (Fig. 2) showing changes

Courtesy Copy Showing Locations of Changes to Fig. 2

REPLACEMENT SHEET

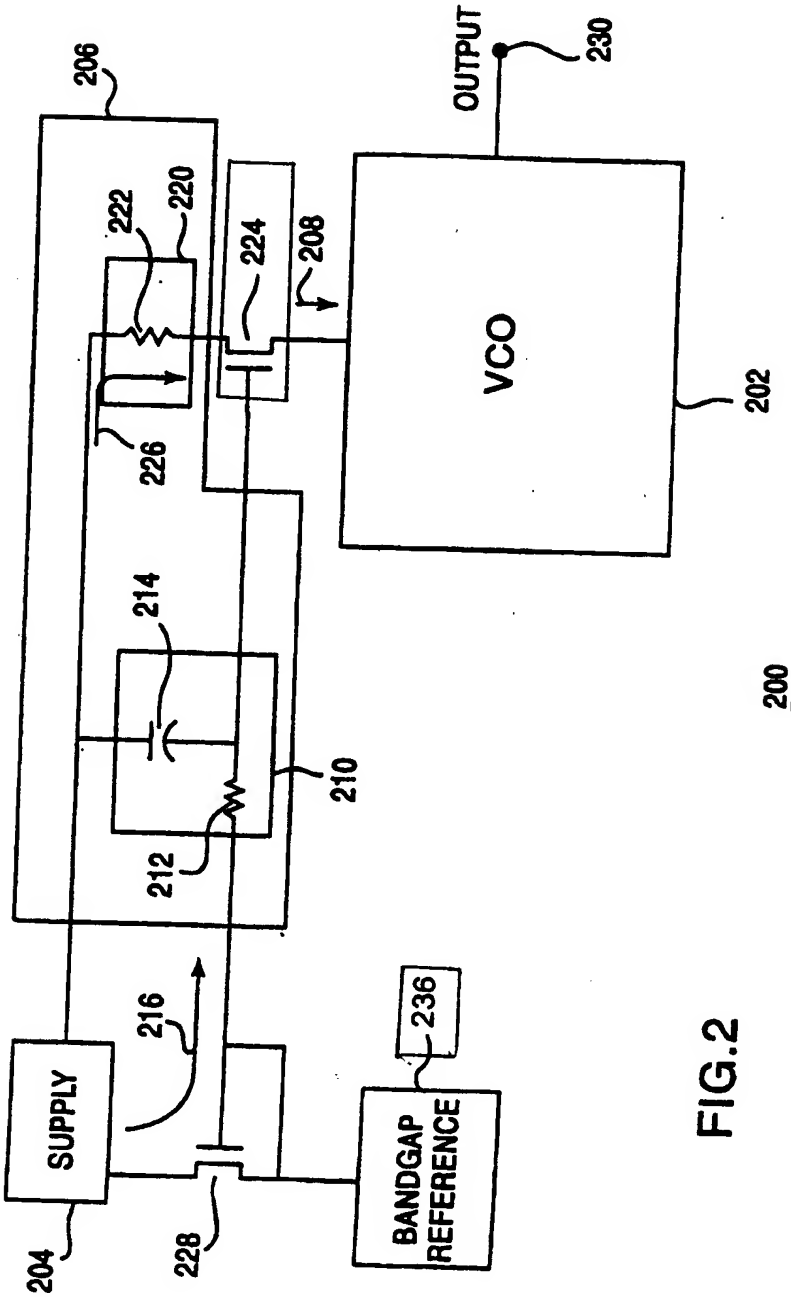


FIG.2